

FIG. 2

No contract

OPCODE	COMMAND MEANING
00 0000 0000	NO INFORMATION
00 0000 0001	RESERVED
00 0000 0010	PC TRACE GAP
00 0000 0011	REPEAT INSTRUCTION
00 0000 0100	COUNTER START
00 0000 0101	COUNTER OVERFLOW/COUNTER VALUE
00 0000 0110	RESERVED
00 0000 0111	COMMAND ESCAPE
00 0000 1xxx	EXCEPTION OCCURRED
00 0001 0xxx	TIMING SYNC POINT
00 0001 1xxx	MEMORY REFERENCE SYNC POINT
00 0010 xxxx	PC SYNC POINT/FIRST/LAST/TRIGGER
00 010x xxxx	SAME PC
00 011x xxxx	CPU AND ASIC DATA
00 10xx xxxx	RESERVED
00 11xx xxxx	MEMORY REFERENCE BLOCK
01 xxxx xxxx	BRANCH/BEGINNING OF PARAMETER
10 xxxx xxxx	CONTINUE
11 xxxx xxxx	TIMING

FIG. 3

TIMING PACKET EXAMPLES

OPCODE	CYCLE BITS	MEANING
11	00000000	8 CONSECUTIVE CYCLES OF EXECUTION
11	11111111	8 CONSECUTIVE STALL CYCLES
11	11110000	THE RIGHT MOST BITS INDICATE THE PROCESSOR EXECUTED FOR 4 CYCLES AND THEN STALLED 4 CYCLES
11	10101010	THE BITS MEAN EXECUTE, STALL, EXECUTE, STALL, EXECUTE, STALL, EXECUTE, AND STALL RESPECTIVELY

FIG. 4

TIMING SYNC PACKET

TIMING SYNC HEADER	3-BIT PC SYNC	ID

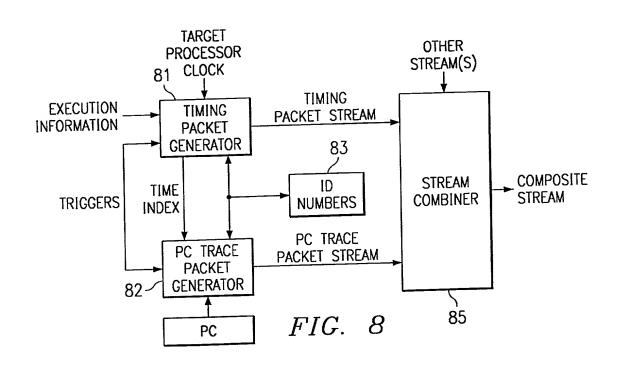
FIG. 5

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PC SYNC POINT TYPES

-	
SYNC TYPE	REASON FOR SYNC POINT
TRIGGER	USER DEFINED TRIGGER
FIRST POINT	STANDBY MODE
SYNC POINT	PERIODICALLY GENERATED
FIRST POINT	STREAM ENABLED
LAST POINT	STREAM DISABLED
	TRIGGER FIRST POINT SYNC POINT FIRST POINT

FIG. 6

TIME PC SYNC POINT **OPCODE** RESERVED TYPE (3 BITS) 0010 00 TIME INDEX (3 BITS) RESERVED SYNC ID (3 BITS) 10 LSB **CURRENT** 10 PC 10 **ABSOLUTE** 10 **ADDRESS MSB** 10 FIG. 7 **OPCODES**



1800

TIME

OPCÓDES

	PACKET	SEQUE		کم ا		
	0011	LD/ST (1 BIT)	DATA, ADDRESS, PC (5 BITS)			
01	DATA	BYTE () LSB	_		
10		ATA BYT				
10		ATA BYT		-		
10		ATA BYTI		-		
10		ATA BYT		-		
10	DATA BYTE 5					
10	DATA BYTE 6					
10	MSB DATA BYTE 7					
01	DATA ADDRESS BYTE 0 LSB					
10	DATA ADDRESS BYTE 1					
10 DATA ADDRESS BYTE 2						
10	MSB DATA ADDRESS BYTE 3					
01	NATIVE PC ADDRESS BYTE 0 LSB		OFFSET, BITS 7-0 (8 BITS)			
10	NATIVE PC ADDRESS BYTE 1	OR	OFFSET, BITS 15-8 (8 BITS) (OPTIONAL)			
10	NATIVE PC ADDRESS BYTE 2		NOT NEEDED			
10	MSB NATIVE PC NOT NEEDED ADDRESS BYTE 3					

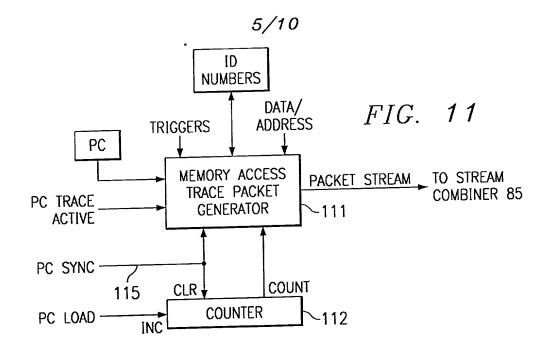
MEMORY REFERENCE SYNC POINT

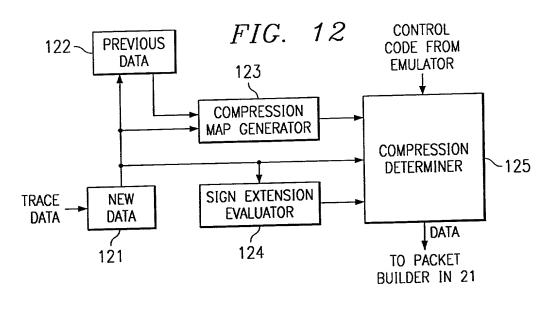
FIG. 9

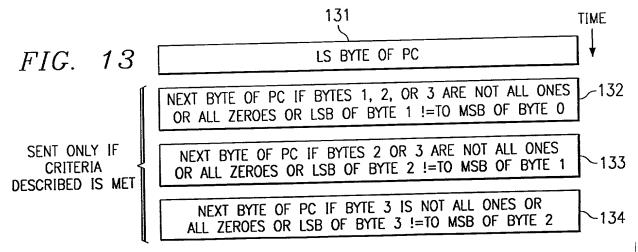
OPCODE	PARAMETER FIELD (3-BITS)
00 00011	MSB SYNC ID LSB

FIG. 10

85 to 680







COMPRESSION EXAMPLE 0					
PREVIOUS DATA	ELITER 111111111 ALTERIA 10000011				
NEW DATA	等连续连续111111111 美国主席第 10000011				
COMPRESSION BIT MAP SENT	NONE BECAUSE ONLY ONE BYTE COMPRESSES				
SEND BYTES	DROPPED DROPPED DROPPED SENT				
BYTE #0 IS SENT					

FIG. 14

COMPRESSION EXAMPLE 1						
PREVIOUS DATA ##################################						
NEW DATA	**************************************					
COMPRESSION BIT MAP SENT	NO BECAUSE ONLY ONE BYTE COMPRESSES					
SEND BYTES	DROPPED DROPPED SENT					
BYTE #0 IS SENT						

FIG. 15

COMPRESSION EXAMPLE 2						
PREVIOUS DATA #11101111 #1101111 10000011						
NEW DATA 11101111 11101111 10000100						
COMPRESSION BIT MAP SENT	YES BECAUSE NO SIGN EXTENSION AND TWO OR MORE BYTES COMPRESS					
SEND BYTES	DROPPED DROPPED SENT					
BYTE #0 IS SENT						

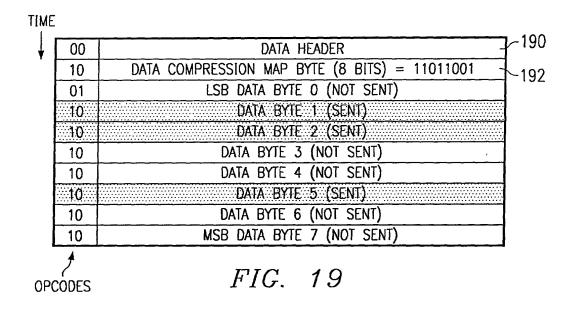
FIG. 16

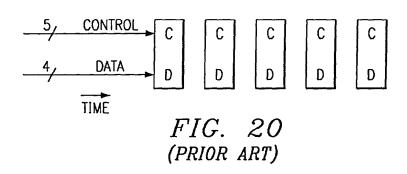
COMPRESSION EXAMPLE 3						
PREVIOUS DATA	00001000 01111110 11000011 10000100					
NEW DATA #11111111111111111111111111111111111						
COMPRESSION BIT MAP SENT	YES BECAUSE NO SIGN EXTENSION AND TWO OR MORE BYTES COMPRESS					
SEND BYTES	DROPPED DROPPED DROPPED					
NO BYTES ARE SENT						

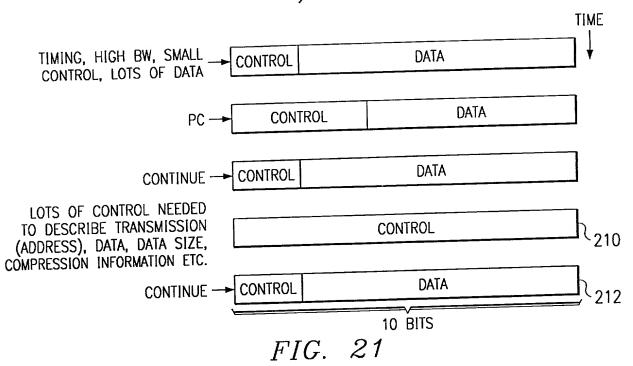
FIG. 17

COMPRESSION EXAMPLE 4						
PREVIOUS DATA #10000014 00000100 #1144414 11111111						
NEW DATA ##################################						
COMPRESSION BIT MAP SENT	YES BECAUSE TWO OR MORE BYTES NOT COVERED BY SIGN EXTENSION COMPRESS					
SEND BYTES	DROPPED DROPPED DROPPED					
NO BYTES ARE SENT						

FIG. 18







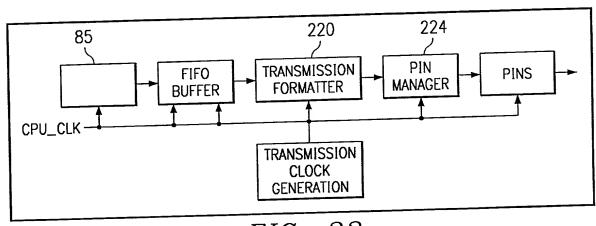


FIG. 22

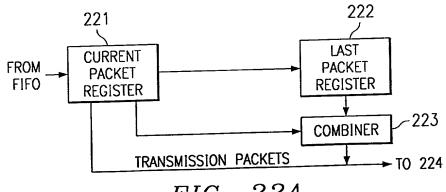


FIG. 22A

6 TRACE PACKETS TRANSMITTED AS 10 TRANSMISSION PACKETS								
10	10 10 10 10 10 10				10			
6 6 6 6 6 6 6 6 6				6				
	TIME →							

FIG. 23

10	10	10	10		10	10
12	12	1	2		12	12
		FIG.	23	A		

110. ~011

ſ	10	10		10	10	10	10		10	10	
	16			16	1	6	16		16		

FIG. 23B

REGISTER 221									REGISTER 222 ✓												
#	# CURRENT TRANSMISSION PACKET									#	# INCOMPLETE TRANSMISSION PACKET										
0	9	8	7	6	5	4	3	2	1	0	EMPTY										
1	9	8	7	6	5	4	3	2	::]::	0	0	9	8	7	6	5	4	3	2	1	0
1	9	8	7	6	5	4	3	2	1	0	1	9	8	7	6	5	4	3	2	1	0
2	9	8	7	6	5	4	3	2	::j::	0	1	9	8	7	6	5	4	3	2	1	0
2	9	8	7	6	5	4	3	2	1	0	2	9	8	7	6	5	4	3	2	1	0
3	9	8	7	6	5	4	3	2	j	0	2	9	8	7	6	5	4	3	2	1	0

FIG. 24

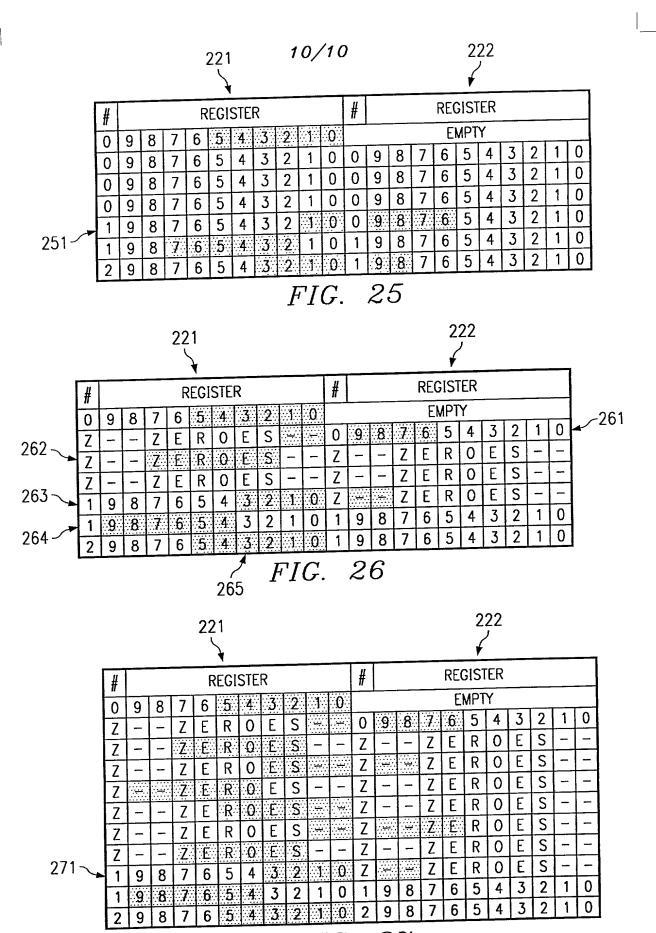


FIG. 27